PASSIVE MATRIX ELECTROPHORETIC DISPLAY MATERIALS

ABSTRACT

Methods for the synthesis of passive matrix electrophoretic display materials are described in this invention. The invention incorporates new approaches to the manipulation of electrophoretic pigment particles, including the use of combined surfactants to impart the characteristics of voltage-induced charge switching (VICS) to particles present in the display materials. The movement of pigment particles in the electrophoretic fluid materials described in this invention is dependent not only on the sign of the applied voltage but also the magnitude of the applied voltage, such that the electrophoretic fluid materials exhibit reduced cross-talk when used in a display operated via a passive matrix driving scheme. The electrophoretic fluid materials described in this invention are synthesised by fusing pigment particles with a polymer in a solvent suspension, followed by addition of a VICS agent and a counter-colour pigment to provide contrast. The invention also incorporates encapsulation of the electrophoretic fluid materials in microcapsules, and includes methods for producing a self-annealing film of microcapsules that can be used to manufacture displays using the materials of this invention.

Note: The preferred figure for publication is FIG. 2.